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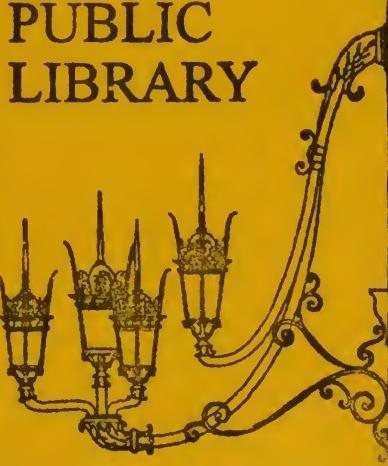
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REPLACEMENT/ TRANSIT IMPROVEMENT STUDY — TRANSIT RIDER SURVEY RESULTS

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TITLE REPLACEMENT / TRANSIT IMPROVEMENT STUDY —
TRANSIT RIDER SURVEY RESULTS

AUTHOR(S) ALLEN SIMON

DATE DECEMBER 1977

ABSTRACT This report summarizes the results of a June 1977 survey of riders boarding the MBTA rapid transit system at nine selected stations: Forest Hills, Green, Egleston, Dudley, Northampton and Dover on the Orange Line; and Ashmont, Fields Corner, and Andrew on the Red Line. The survey was conducted as part of the Replacement / Transit Improvement Study. The procedures used to collect, process and factor survey data are outlined in this report. In order to identify changes in travel patterns in recent years, the results of this survey are compared with the results of a survey conducted in 1963.

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CENTRAL TRANSPORTATION PLANNING STAFF 27 School Street, Boston, Mass. A Cooperative Planning Effort of MAPC, EOTC, MDPW, MBTA, MBTA ADV. BD., MASSPORT.

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SUMMARY OF FINDINGS

In early June of 1977, a survey was conducted of riders boarding nine selected MBTA rapid transit stations between 7:00 and 10:00 a.m. The stations surveyed were Forest Hills, Green, Egleston, Dudley, Northampton and Dover on the Orange Line, and Ashmont, Fields Corner and Andrew on the Red Line. The survey was conducted to provide participants in the Replacement / Transit Improvement Study with up-to-date knowledge of the origins, destinations and other characteristics of current transit riders.

Origins and Destinations

During the survey period, about 13,000 persons boarded the six Orange Line stations, and about 8,400 persons boarded the three Red Line stations. Over 90% of the Orange Line riders surveyed and nearly three-fourths of the Red Line riders surveyed started their trips within the City of Boston. More than 80% of the Orange Line riders and over 70% of the Red Line riders had destinations in Boston Proper (that is, within Massachusetts Avenue). Back Bay represents a much larger share of the travel bound for Boston Proper for the Red Line ridership than it does for the Orange Line ridership (15.3% vs. 6.6%). There are two explanations for this: (1) it is more time consuming for Orange Line riders to reach Back Bay using the Green Line (westbound) than it is for Red Line riders, and (2) some potential Orange Line riders use the Arborway Branch to reach Back Bay. Although Charlestown, Everett and Malden are within easy reach of the Orange Line, only a small percentage of the riders surveyed reported these areas as destinations.

Since 1963, boardings at the six Orange Line stations have fallen by 32% (source: 1963 Transit Postcard Survey). The decline rate for boarders from West Roxbury, Roslindale and outer Southwest communities greatly exceeds this overall decline rate. The number of Orange Line boarders coming from Jamaica Plain, Hyde Park and Dedham has remained the same since 1963. The change in Red Line boardings since 1963 (a decline of over 50%) reflects a diversion of ridership to the Quincy Extension.

The share of riders boarding at the Orange and Red Line stations who are bound for Back Bay has grown since 1963. This is due to increased employment and retail activity in the Back Bay. The deterioration of Arborway Branch service and subsequent diversion of Back Bay bound riders to the Orange Line also explains the growth of the Back Bay share of destinations for Orange Line riders.

Auto Ownership and Dependency on Transit

A high percentage of Orange and Red Line riders are "captive"--they have no choice other than taking public transportation. Over 26% of the Red Line users surveyed and 32% of the Orange Line users surveyed came from households with no automobile. Surveys conducted in other parts of metropolitan Boston show significantly higher rates of auto ownership among transit ridership. The percentage of Blue Line patrons coming from households with no automobile is 17%. The Blue Line serves a predominantly urban market. Auto ownership levels for users of transit services in the suburbs is much higher. A survey of riders boarding the Green Line and the MBTA express bus services operating from Riverside showed that 4% of the Green Line riders and less than 2% of the express bus riders came from households where no automobile was operated or available.

Trip Purpose

On both lines, the vast majority of riders, about 95%, were coming from their homes. About 80% were traveling to work, and about 8%, to school. The remaining riders were going home, shopping, or to a medical location.

Mode of Access and Departure

Over half of the Orange Line riders arrived at the line by bus, with another one-fourth walking, and about 18% driving or being driven to their station. About 73% of the Orange Line riders left the line by walking, with another 20% transferring to another part of the rapid transit system, and about 7% leaving the Orange Line by bus. Six percent transferred two times after leaving the Orange Line.

Bus and, at Ashmont, trolley were the major modes of access to Red Line stations surveyed. Sixty-two percent of the Red Line riders left the line by walking.

Another 29% transferred to another part of the rapid transit system upon leaving the Red Line. Two percent transferred two times after leaving the Red Line.

Comments About Service

The survey respondents most frequently cited not enough trains, poor condition of trains, poor condition of stations and poor quality of service in winter as their concerns with the rapid transit service. Only about 6% of the respondents said that they were satisfied with the service. None of the respondents who had to transfer to the Green Line to complete their trips reported satisfaction. Most of the comments mentioning bus service dealt with poor schedule adherence and inadequate frequency.

1.0 INTRODUCTION

1.1 PURPOSE

This is one of a series of technical memoranda produced by the Central Transportation Planning Staff (CTPS) for the Replacement / Transit Improvement Study for the South End, Roxbury, Dorchester and Mattapan. The purpose of a technical memorandum is to document the procedures and results of a particular work task, so that the information is accessible to all participants of the study.

The purpose of this technical memorandum is to disseminate the information obtained from the transit rider survey, which was conducted to identify characteristics of current transit users in the study area. Separate memoranda describe the results of the market analysis and travel forecasts performed as part of the study.

1.2 DATA ITEMS COLLECTED

In early June of 1977, a survey was conducted of riders boarding the MBTA rapid transit system at nine selected stations between 7:00 and 10:00 a.m. The stations surveyed were Forest Hills, Green, Egleston, Dudley, Northampton and Dover on the Orange Line, and Ashmont, Fields Corner and Andrew on the Red Line.

Attachment A is a copy of the form distributed to riders. The survey was conducted to provide participants in the Replacement / Transit Improvement Study with up-to-date information on the origins and destinations of transit users in the study area. The survey was also intended to be a source of current data on mode of access to transit stations and on mode used from transit stations. Information on trip purpose was collected. The survey form asked several demographic questions which dealt with age, occupation, auto ownership and type of fare paid. Comments on the service were also requested on the survey form.

1.3 BACKGROUND INFORMATION ON PREVIOUS SURVEYS AND STUDIES

Origin and destination information was last collected on a large scale in two efforts. As part of the 1963 Transit Postcard Survey, information was collected from persons using the public transportation system. In that survey, information on submode (transportation mode to and from the transit system), station or stop of boarding and alighting, trip purpose, auto ownership, driver's license and trip frequency was gathered in connection with the transit trip being made at the time of the survey. In the 1963 Home Interview Survey, data was gathered from residents living in the Eastern Massachusetts Regional Planning Project (EMRPP) study area. In that survey, origin-destination, submode, trip purpose and demographic data were collected for all travel by all members of selected households on a specific day. The information collected in the 1963 Postcard Survey and the 1963 Home Interview Survey serves as the basis for models used to predict travel behavior in the Replacement / Transit Improvement Study. The origin-destination information obtained from the 1977 survey will assure the accuracy of these travel forecasting models before they are used in this study.

Information on ridership levels on the rapid transit system and on MBTA buses has been compiled as part of the CTPS/EOTC Transit Marketing Study. This study presented data on overall trends in public transportation usage between 1965 and 1976, as well as changes in boardings at individual stations. Surveys of ridership of specific bus routes have been conducted recently by the MBTA Department of Community Affairs and Marketing. Demographic and origin-destination information is gathered in this on-going effort to survey bus riders.

The 1970 U.S. Census collected information on auto ownership, income, household size, age and other demographic characteristics for all U.S. residents. These items are usually available on a census tract or block level. Information on travel to work was collected by the Census in 1970.

1.4 VALUE OF DATA COLLECTED BY THE SURVEY IN THE REPLACEMENT / TRANSIT IMPROVEMENT STUDY

The information gained from the survey is necessary to answer the detailed questions about transit options under consideration in Phase II of the Replacement / Transit Improvement Study. Estimates of use of submodes in connection with each option will be developed in Phase II. Data from this survey will be useful as a

basis for these estimates. The survey has given MBTA planners feedback on travel patterns of transit users and on problems current riders experience.

2.0 PROCEDURES FOLLOWED IN CONDUCTING THE SURVEY

2.1 DAYS, TIMES AND PLACES OF THE SURVEY

The survey was conducted between 7:00 and 10:00 a.m. on June 7, 8 and 9, 1977. On June 7, survey forms were distributed to persons boarding the Orange Line at Forest Hills, Green and Egleston stations, and on June 8, boarders at Dudley, Northampton and Dover received survey forms. On June 9, Red Line riders boarding at Ashmont, Fields Corner and Andrew were surveyed. The three survey days fell in the middle of the work week (Tuesday through Thursday). The weather on these days was somewhat uniform. It was colder than average for early June. Light to moderate rain fell on the morning of June 7.

2.2 SURVEY DISTRIBUTION AND RESPONSE

At each station the survey forms were distributed to inbound and outbound rapid transit boarders immediately after they had passed through the turnstile area. At the terminal rapid transit stations, Ashmont and Forest Hills, forms were given to inbound boarders. At Ashmont, forms were passed out to inbound Red Line riders and not to outbound riders of the Mattapan High Speed Line.

The forms had serial numbers. At each station the sequence of forms distributed was recorded. The station of boarding corresponding with each response could be determined by the serial number on the survey form.

The survey form was printed on a hard $8\frac{1}{2}$ " x 11" card (see Attachment A). The reverse side of the form was a business reply mail card. Survey respondents could mail their forms to the MBTA. If the survey respondent had sufficient time to complete the form before boarding a rapid transit car, the form could be returned to a member of the survey team at the boarding station. The form could also be returned to specially identified survey collectors at downtown transit stations on the morning of the survey.

A total of 16,500 forms were handed out during the survey. There were 4,700 cards returned, which represents 28.5% of all forms distributed. Approximately 540

forms were completed before the respondent boarded the rapid transit and about 860 forms were returned to survey personnel at the downtown transit stations. The remaining 3,300 forms were returned by mail.

Table 2-1 shows information on the number of passengers using each station on the morning of the survey and on the number of forms distributed and returned on a station by station basis. Coverage, represented by survey cards distributed divided by the number of persons boarding at a station, varied from station to station. At low volume stations, coverage was high. For stations with less than 3,500 morning period boarders, between 80% and 95% of all boarders were given survey forms.

Forest Hills and Ashmont had lower coverage than the rest of the stations surveyed. This was due to a number of factors. Both stations are terminals. When a train is waiting at the platform, riders entering the platform tend to rush to the train. They do not know whether the train is just about to leave and are less willing to slow down to accept a survey. (The members of the survey teams were instructed that while their purpose was to give out forms, they were not allowed to impede passenger movement.) When a train is not at the platform, the volumes are so great that platforms fill with boarders and distribution of forms becomes difficult. Finally, a large share of the arrivals at Forest Hills and Ashmont are by feeder bus or streetcar and are not distributed evenly over time. A loaded bus or streetcar can drop off 50 or more people at the station at once.

It can also be seen from Table 2-1 that the percent return (cards returned divided by cards distributed) varied from 38% at Green to a low of 18% at Dudley. The overall rate of coverage was 77.1%. The overall rate of return was 28.5%. This means that the number of forms returned represented 22.0% of the number of persons boarding at the stations during the time of the survey.

2.3 PROCEDURES TO COUNT TOTAL BOARDINGS AT STATIONS

At each station, during the morning of the survey, personnel recorded the total number of persons boarding. These volumes were recorded every 15 minutes. Passengers using turnstiles were counted by reading the passometers. Passengers using the pass gates or cash boxes were counted separately with hand counters. Special forms for recording turnstile readings were prepared for each station prior to the survey. These forms had a schematic of the bank of turnstiles and

<u>Station of Boarding</u>	<u>Total Entering Passengers</u>	<u>Total Cards Distributed</u>	<u>% * Coverage</u>	<u>Total Cards Returned</u>	<u>% ** Return</u>
Forest Hills	6,076	3,793	62.4%	1,267	33.4%
Green	540	487	92.0	188	38.6
Egleston	1,448	1,346	92.9	276	20.5
Dudley	3,335	2,815	84.4	517	18.3
Northampton	753	716	95.0	194	27.1
Dover	860	705	82.0	162	23.0
Ashmont	5,006	3,699	73.9	1,401	37.9
Fields Corner	1,786	1,510	84.5	405	26.8
Andrew	<u>1,639</u>	<u>1,471</u>	<u>89.7</u>	<u>303</u>	<u>20.6</u>
Totals	21,443	16,542	77.1%	4,713	28.5%

*% coverage is total cards distributed divided by total passengers entering.

**% return is total cards returned divided by total cards distributed.

serial numbers for each turnstile and cash box. The forms reduced the possibility of error and enabled results to be cross-checked after the survey. The number of persons counted boarding at each station is shown in Table 2-1.

2.4 EXPANSION FACTORS

To compensate for the variation in response rates between riders boarding at the different stations, each survey response was weighted according to station of boarding. These expansion factors are shown in Table 2-2. Using these factors, it was possible to bring total responses to any question up to a "control total" equal to total persons counted boarding during the survey period. The results described in Section 3 are based upon expansion of survey responses by these factors.

The completed responses to any particular question on the survey form had to be further expanded to compensate for respondents who failed to answer the question. In other words, responses to particular questions had to be weighted by factors larger than those shown in Table 2-2 to reach to control totals, because some respondents did not answer all questions on the survey form. Most questions were completed by all but a few respondents (typically one to three percent non-response). The questions dealing with origin and destination had significant rates of non-response. About 70% of the respondents answered both the origin and the destination question.

2.5 SURVEY DATA FILE

Appendix B is a listing of the items in the survey data file. Coding used in the data file is also described in this appendix.

<u>Station</u>	<u>Expansion Factor</u>
Forest Hills	4.80
Green	2.87
Egleston	5.25
Dudley	6.45
Northampton	3.88
Dover	5.31
Ashmont	3.57
Fields Corner	4.41
Andrew	5.41

3.0 SURVEY RESULTS

3.1 DEMOGRAPHIC ITEMS

During the survey period, about 13,000 persons boarded the six Orange Line stations and about 8,400 persons boarded the three Red Line stations.

3.1.1 Occupation

Table 3-1 shows information on the occupation of the transit riders. The majority (63%) of the transit riders classified themselves as either clerical or professional workers, although relatively few professionals boarded at Dudley, Egleston, Fields Corner or Andrew. Students make up about 11% of all boarders, with larger proportions of students at Fields Corner, Egleston and Dudley.

3.1.2 Age

Information on the age of the transit riders is shown in Table 3-2. Overall, about 5% of the boarders are 17 years of age or less, with considerable variation between proportions for individual stations. The overall share of boarders under 18 at Red and Orange Line stations is not extraordinarily large or small. A survey conducted by CTPS as part of the North Shore Transit Improvement Project found that Blue Line ridership under 18 years of age represents less than 3% of all boarders. Another survey conducted by CTPS as part of the Riverside Station Improvement Study showed that about 5% of all Green Line boarders at Riverside are under 18 years of age. Both surveys were conducted in late spring of 1977 during morning peak periods.

About 5% and 4%, respectively, of the Red Line and Orange Line boarders surveyed are 65 years of age or older. These overall percentages are neither unusually high nor low. About 2% and 4%, respectively, of the Blue Line and the Riverside Station (on the Green Line) boarders are 65 years of age or older. Typically, the elderly make up greater portions of the transit ridership during midday than during peak periods. The shares of daily boardings by riders 65 years of age or older would probably be greater than the shares shown in Table 3-2.

<u>Station of Boarding</u>	<u>Craftsman/ Foreman</u>	<u>Factory</u>	<u>Clerical</u>	<u>Housewife</u>	<u>Unemployed</u>	<u>Professional</u>	<u>Student</u>	<u>Retired</u>	<u>Sales</u>	<u>Domestic</u>	<u>Other</u>
Forest Hills	1.5	2.6	37.7	2.1	0.9	32.6	5.5	1.4	3.9	0.9	10.9
Green	5.0	5.0	24.6	1.1	2.8	32.4	10.1	0.6	1.1	2.2	15.1
Egleston	5.5	1.6	37.5	0.8	1.6	22.9	15.8	0.4	1.6	3.2	9.1
Dudley	7.9	2.1	36.3	1.9	1.5	17.6	14.3	1.2	2.9	4.1	10.2
Northampton	4.9	3.3	23.0	0.0	3.8	36.1	11.5	2.2	2.7	2.2	10.4
Dover	3.7	0.6	24.7	0.6	1.2	41.4	11.7	0.0	3.7	0.0	12.3
Orange Line Surveyed*	4.1	2.4	35.1	1.7	1.4	28.5	9.8	1.2	3.2	2.0	10.8
Ashmont	2.3	2.7	37.3	1.3	0.9	30.6	9.5	1.5	4.4	1.4	8.1
Fields Corner	3.6	3.1	34.9	2.3	2.3	17.8	17.8	2.3	1.8	1.3	12.7
Andrew	4.7	1.4	34.8	2.5	1.4	20.3	10.9	2.2	3.3	2.9	15.6
Red Line Surveyed*	3.1	2.6	36.3	1.7	1.3	25.9	11.5	1.8	3.6	1.7	10.5

*Total percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

<u>Station of Boarding</u>	<u>Age Group</u>					
	<u>17 or under</u>	<u>18-24</u>	<u>25-44</u>	<u>45-59</u>	<u>60-64</u>	<u>65 or over</u>
Forest Hills	1.7	19.5	36.7	27.9	8.0	6.1
Green	5.5	23.2	48.6	14.9	4.4	3.3
Egleston	8.9	31.7	41.3	13.5	3.9	0.8
Dudley	8.6	32.0	39.2	16.0	2.1	2.1
Northampton	5.3	24.2	55.3	9.5	3.7	2.1
Dover	7.9	19.4	57.6	12.7	1.8	0.6
Orange Line Surveyed*	5.0	24.5	40.8	20.7	5.2	3.8
Ashmont	2.5	27.0	37.9	22.1	5.9	4.6
Fields Corner	13.6	30.8	29.3	18.5	4.4	3.3
Andrew	6.2	28.3	30.8	23.6	5.1	6.2
Red Line Surveyed*	5.6	28.0	34.7	21.6	5.4	4.7

*Total percentages for each line are based upon survey results expanded to reflect the number of boardings at each station.

Note: This information is based upon results of a survey conducted in June, 1977. Hours of the survey were 7 AM to 10 AM.

3.1.3 Auto Ownership

A high percentage of Orange Line and Red Line riders are "captive"--they have no choice other than taking public transportation. Table 3-3 presents information on auto ownership rates. Over 26% of the Red Line users surveyed come from households with no automobile. For Orange Line riders this percentage is 32%. Auto ownership rates are lowest among riders boarding at Dudley and Northampton.

Surveys conducted in other parts of metropolitan Boston show significantly higher rates of auto ownership among transit ridership. The percentage of Blue Line patrons coming from households with no automobile is 17%--almost ten percentage points below the number for the Red Line and fifteen points below the number for the Orange Line.

The Blue Line serves a predominantly urban market. Auto ownership levels for users of transit services in the suburbs are much higher. A survey of riders boarding the Green Line and the MBTA express bus services operating from Riverside showed that 4% of the Green Line riders and less than 2% of the express bus riders come from households where no automobile was operated or available.

3.1.4 Method of Payment / Use by Handicapped

Table 3-4 shows the type of fare paid by survey respondents. The majority (75%) of the boarders pay a regular cash fare. About 14% of all boarders use the pre-paid pass. Handicapped riders, as measured by survey respondents using the handicapped fare, represent less than 1% of the riders on each line.

3.2 TRIP PURPOSE

Table 3-5 gives information on trip purpose. On both lines, the vast majority of the riders, about 95%, were coming from their homes. About 80% were traveling to work and about 8% were going to school. The remaining riders were going home, shopping or to a medical location.

On other parts of the MBTA, work trips usually make up a higher share of peak period boardings than the share found on the Orange and Red lines in this survey. Work trips represent 86% of the Blue Line boardings, 88% of the Quincy extension boardings and 95% of the Riverside Express Bus boardings. The exception to this generalization is at Riverside Station, where 66% of persons boarding the Green Line are on work trips.

Station of Boarding	Automobiles in Household			
	None	One	Two	Three or more
Forest Hills	18.9	51.5	22.2	7.3
Green	31.5	48.3	15.7	4.5
Egleston	37.3	47.1	14.1	1.6
Dudley	52.3	35.7	10.0	2.1
Northampton	43.6	46.3	8.0	2.1
Dover	35.8	47.5	14.8	1.9
Orange Line Surveyed*	32.5	46.3	16.6	4.6
Ashmont	21.0	51.4	19.4	8.1
Fields Corner	32.5	48.8	13.5	5.2
Andrew	36.4	41.1	17.8	4.7
Red Line Surveyed*	26.4	48.9	17.9	6.8

*Total percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

Note: This information is based upon results of a survey conducted in June, 1977. Hours of the survey were 7 AM to 10 AM.

Method of Payment	Transit Line Surveyed	
	Orange Line*	Red Line*
Student Transfer	3.6	3.4
Elderly	3.6	4.3
Handicapped	0.2	0.6
Student Half Fare	1.9	1.6
Child Half Fare	0.2	0.1
Pre-Paid Pass	14.9	13.7
Cash Fare	75.1	75.5
Other	0.4	0.9

*Total percentages for each line are based upon survey results expanded to reflect number of boardings at each station

Note: This information is based upon results of a survey conducted in June, 1977. Hours of the survey were 7 AM to 10 AM.

Category of Trip Purpose	Transit Line Surveyed	
	Orange Line*	Red Line*
Work	81.4	80.6
School	7.7	8.8
Shopping	3.2	2.4
Home	2.5	2.1
Medical	1.3	1.7
Other	3.8	4.4

*Total percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

Note: This information is based upon results of a survey conducted in June, 1977. Hours of the survey were 7 AM to 10 AM.

3.3 ORIGINS

Figure 3-1 shows the Orange Line and Red Line in relation to Boston and nearby communities. Information on the origins of transit riders is shown in Table 3-6. Over 90% of the Orange Line riders surveyed started their trip within the City of Boston. Most of the Orange Line riders came from Roxbury (24%), Jamaica Plain (21%), West Roxbury / Roslindale (12%), Hyde Park (11%) and Dorchester (9%). Dedham was the only city or town besides Boston having a significant number of origins for Orange Line riders (4%).

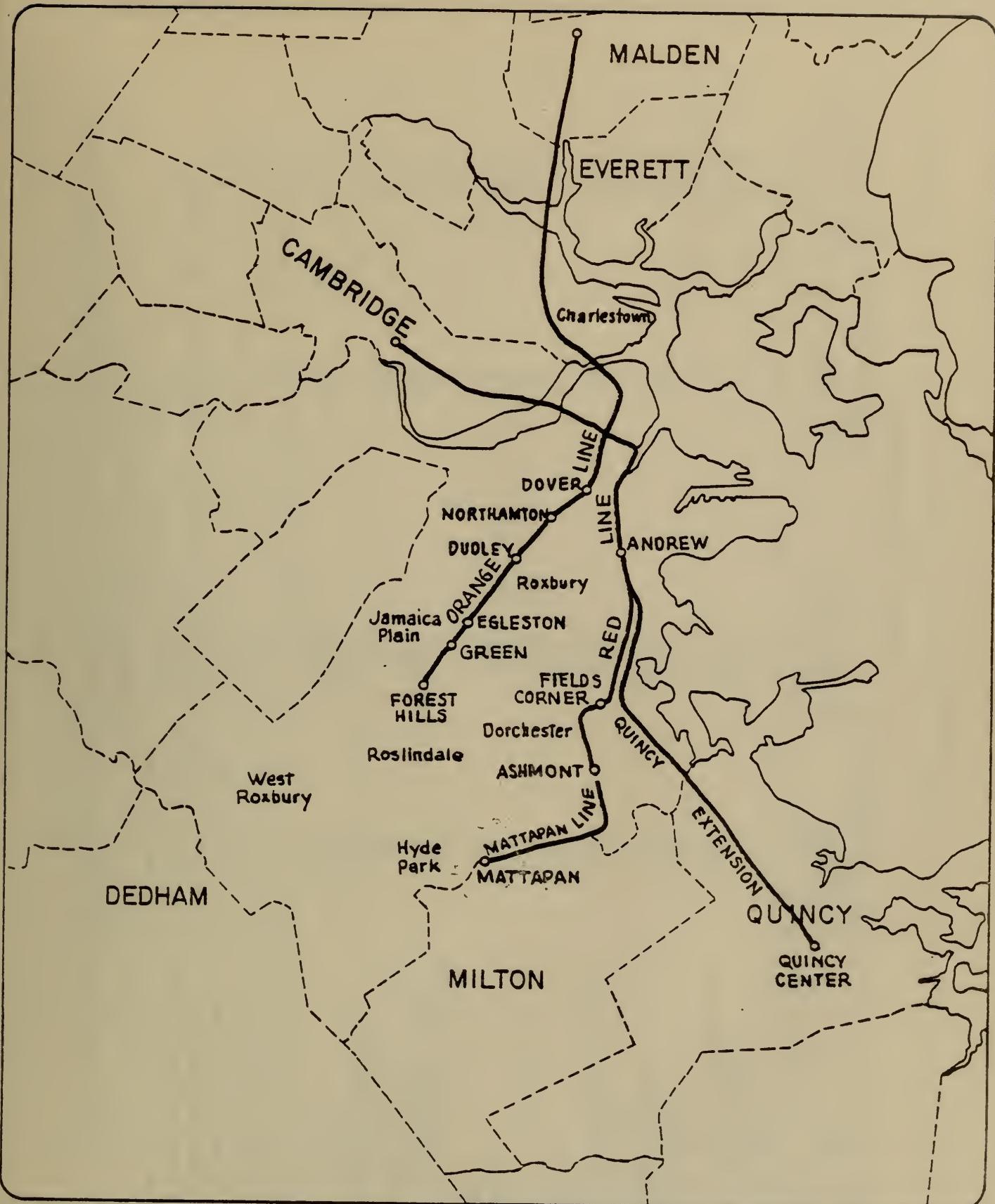
Nearly three-fourths of all Red Line riders surveyed had Boston origins. Half of the riders came from Dorchester and about 10% came from Mattapan. Milton represented 12% of the origins. The South Shore communities beyond Route 128 collectively account for about 7% of all Red Line origins.

3.4 DESTINATIONS

More than 90% of the Orange Line riders surveyed had Boston destinations. Data on destinations of Orange and Red Line riders is shown in Table 3-7. Boston Proper (that is, within Massachusetts Avenue) was the destination for eight out of ten Orange Line riders. Downtown Boston was the destination for nearly 90% of the riders going to Boston Proper. About 4% of the Orange Line riders were going to Cambridge. Although Charlestown, Everett and Malden are within easy reach of the Orange Line, only a small percentage of the riders surveyed reported these areas as destinations.

Nearly 90% of the Red Line riders surveyed had destinations in Boston. Over 70% of the Red Line riders were going to Boston Proper. About 8% of the riders had Cambridge as a destination.

Downtown Boston was the destination for 82% of the Red Line riders going to Boston Proper. Back Bay represents a much larger share of the travel bound for Boston Proper for the Red Line ridership than it does for the Orange Line ridership (15.3% vs. 6.6%). It is more time consuming for Orange Line riders to reach Back Bay destinations using the Green Line than it is for Red Line riders. Red Line riders can transfer to any branch of the Green Line at Park Street. Orange Line riders can transfer to the Green Line at Haymarket or North Station. Additional transfers may be required to reach the correct branch of the Green Line. The Orange Line rider must travel a greater distance on the Green Line than the Red Line rider to reach a specific destination. Also, some potential Orange Line riders use the Arborway Branch to reach Back Bay.



ORANGE LINE AND RED LINE IN RELATION TO BOSTON
NEIGHBORHOODS AND NEARBY COMMUNITIES

one mile



FIG.
3-1

Town or Neighborhood of Origin	Transit Line Surveyed		Number of Boarders	Percent of All Boarders	Red Line*	Percent of All Boarders
	Orange Line*	Percent of All Boarders				
Boston	11,737	90.2%	6,247	74.1%		
- Roxbury	3,168	24.3	44	0.5		
- Dorchester	1,157	8.9	4,227	50.2		
- Jamaica Plain	2,722	20.9	244	2.9		
- W. Rox. & Roslindale	1,520	11.7	16	0.2		
- Hyde Park	1,380	10.6	24	0.3		
- Mattapan	842	6.5	837	9.9		
- South Boston	0	0.0	771	9.1		
- South End	408	3.1	8	0.1		
- Other Neighborhoods	540	4.2	76	0.9		
Brookline	149	1.1	0	0.0		
Dedham	513	4.0	16	0.2		
Milton	82	0.6	1,008	12.0		
Newton	104	0.8	0	0.0		
Quincy	69	0.5	76	0.9		
Outer Southwest Towns**	183	1.4	136	1.6		
Outer South Shore Towns***	14	0.1	618	7.3		
Brockton & Vicinity****	36	0.3	299	3.5		
Remaining Origins	125	1.0	31	0.4		
Total Origins	13,012	100.0%	8,431	100.0%		

*Boardings and percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

** Includes Needham, Dover, Westwood, Norwood, Canton, Stoughton, Sharon, and other towns in Southwest section of EMRPP district.

*** Includes Randolph, Braintree, Weymouth, Hingham, Holbrook, Rockland, and other towns in South Shore section of EMRPP district.

**** Includes Brockton and nearby towns - Abington, Hanson, Whitman, Avon, Easton, Halifax, East Bridgewater, West Bridgewater, and Bridgewater.

Town or Neighborhood Destination	Transit Line Surveyed	
	Orange Line* Number of Boarders	Red Line* Number of Boarders
	Percent of All Boarders	Percent of All Boarders
Boston	12,009	7,394
-Boston Proper	10,469	6,045
(Downtown)	(9,415)	(4,988)
(South End)	(363)	(133)
(Back Bay)	(691)	(924)
-Fenway	241	1.8
-South Boston	242	1.9
-Roxbury	216	1.7
-Dorchester	306	2.4
-Jamaica Plain	198	1.5
-Allston/Brighton	56	0.4
-Charlestown	133	1.0
-East Boston	68	0.5
-Other Neighborhoods	80	0.6
Cambridge	581	4.5
Somerville	11	0.1
Everett & Chelsea	51	0.4
Quincy	70	0.5
Newton	79	0.6
Brookline	63	0.5
Northern Corridor Towns **	80	0.6
Remaining Towns	68	0.5
Total Destinations	13,012	100.0
		8,431
		100.0
		78
		0.9

*Boardings and percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

**Includes Malden, Medford, Winchester, Melrose, Woburn, Stoneham and Wakefield.

3.5 STATIONS OF BOARDING AND ALIGHTMENT

3.5.1 Orange Line

Information on boardings by station is shown in Table 2-1. The counts made at each station showed that 6,076 persons boarded the Orange Line at Forest Hills during the morning of the survey, which represents almost half of the Orange Line boardings (13,012). Another one-fourth of the ridership boarded at Dudley, and one-eighth, at Egleston. The combined boardings at Green, Northampton and Dover account for 18% of all boardings observed at Orange Line stations.

Table 3-8 shows information on the percentage of Orange Line boarders alighting at each station. Only 2% of the Orange Line riders traveled on the line beyond North Station. Most of the Orange Line riders left the line at either Washington or State Station. About 5,065 (40%) of the Orange Line riders alighted at Washington.

About 16% of the boardings at Northampton and Dover, the two innermost stations surveyed, were in the outbound direction. The percentage of outbound boardings at other Orange Line stations surveyed was considerably lower.

3.5.2 Red Line

Table 2-1 shows information on boardings at Red Line stations. Most of the Red Line riders surveyed--six out of every ten--boarded at Ashmont. The remaining boarders were split almost evenly between Fields Corner and Andrew Station.

Table 3-9 presents information on the percentage of Red Line boarders alighting at each station. The majority of the riders surveyed left the Red Line at either Park (40%) or Washington (25%). Over 13% left at South Station, and about 8% alighted at Red Line stations in Cambridge (Kendall, Central or Harvard).

Travel on the Red Line outbound by persons surveyed was very limited: less than 3% of the boarders at Fields Corner rode outbound, less than 2% of the Andrew boarders rode the main branch of the Red Line outbound, and about 4% of the Andrew boarders rode the Quincy Extension outbound.

<u>Station Off</u>	<u>Forest Hills</u>	<u>Green</u>	<u>Egleston</u>	<u>Dudley</u>	<u>Northampton</u>	<u>Dover</u>	<u>Orange Line Surveyed*</u>
Forest Hills	-	1.6*	1.9*	2.2*	7.3*	4.9*	1.5
Green	0.2	-	0.8*	0.0	2.1*	0.0	0.3
Egleston	0.4	1.6	-	0.0	2.6*	0.0	0.4
Dudley	1.6	4.4	11.5	-	3.1*	12.4*	3.2
Northampton	2.8	2.2	4.7	1.6	-	0.0	2.3
Dover	2.5	6.6	3.5	5.8	1.6	-	3.4
Essex	7.5	7.2	6.0	7.9	5.2	4.9	7.1
Washington	40.3	41.9	38.4	41.7	39.4	37.1	40.3
State	35.5	27.0	23.4	28.5	25.7	32.7	31.4
Haymarket	5.1	4.9	5.5	4.9	6.9	5.0	5.2
North Station	3.2	1.6	2.7	4.7	3.1	1.8	3.3
North of Downtown	0.9	1.0	1.6	2.6	3.6	1.2	1.6

*Reverse commuting.

**Total percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

<u>Station Off</u>	<u>Station On</u>	<u>Ashmont</u>	<u>Fields Corner</u>	<u>Andrew</u>	<u>Red Line Surveyed**</u>
Quincy		0.0	0.3*	4.1*	0.8
Ashmont		-	2.6*	0.7*	0.8
Fields Corner		1.4	-	0.0	0.9
Savin Hill		0.2	0.3	0.7*	0.3
Columbia		2.6	2.6	0.4*	2.2
Andrew		1.3	1.8	-	1.4
Broadway		2.0	7.9	4.0	3.7
South Station		14.2	12.3	13.2	13.7
Washington		27.7	26.6	29.4	27.3
Park		40.1	33.2	38.0	38.2
Charles		2.3	2.6	2.9	2.5
Cambridge		8.2	9.8	6.6	8.2

*Reverse commuting.

**Total percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

3.6 STATION ACCESS AND DEPARTURE

3.6.1 Orange Line

3.6.1.1 Access

Information on the submode of access to the Orange Line stations is shown in Table 3-10. Over half of the riders arrived at the line by bus, with another one-fourth walking, and about 18% driving or being driven to their station. About 1% of all boarders used two transit vehicles (for example, transfer from one bus to another) to reach their boarding station.

While the percentages of arrivals by different submodes vary considerably from station to station, the absolute number of persons walking to the stations hardly varies. The number of persons walking to an Orange Line station ranged from 660 at Forest Hills to 400 at Green Street Station. The number of arrivals by bus to the stations varied a great deal due to different supplies of feeder service to the stations. The number of arrivals by auto varied as a result of a number of factors. Some of the factors are parking space availability, safety of the station area from crime, and location of the station in relation to the highway system.

3.6.1.2 Departure

About 73% of the Orange Line riders did not specify that a transfer was made to another mass transit line after they left the Orange Line. Presumably, these persons walked to their destinations. About 7% used a bus immediately after leaving the Orange Line. Another 3% of the riders transferred from the Orange Line to another part of the rapid transit system and then used a bus to get to their destination.

Twenty percent of the Orange Line riders used the Red, Blue or Green Line upon alighting from the Orange Line. Table 3-11 presents information on the number of transfers to other rapid transit lines. About 1,700 riders, or 13% of the riders surveyed, transfer to the Red Line. About 400 of these riders continue to the Green Line from the Red Line. Another 180 riders transfer directly to the Green Line from the Orange Line (at Haymarket or North Station). About 710 riders, or 5.5% of the riders surveyed, transfer to the Blue Line.

Station of Boarding	Mode of Access					
	Walking	Bus	Trolley or Train	Trolley or Train	Taxi	Other
	Park & Ride	Ride	Ride	Ride	Ride	Ride
Forest Hills	10.9	63.3	15.8	8.0	1.5	0.5
Green	75.6	1.7	18.9	2.8	1.1	0.0
Egleston	35.3	50.8	9.3	1.9	1.6	1.2
Dudley	15.9	77.2	3.7	2.4	0.6	0.2
Northampton	65.1	11.6	14.8	6.3	0.0	2.1
Dover	66.7	7.3	23.6	1.8	0.6	0.0
Orange Line Surveyed*	24.3	56.2	12.6	5.2	1.1	0.5
Ashmont	21.9	36.2	6.8	5.1	29.6**	0.3
Fields Corner	52.3	40.9	3.3	1.8	1.3	0.5
Andrew	29.8	50.2	10.5	6.9	2.2	0.0
Red Line Surveyed*	29.9	39.9	6.8	4.8	18.2	0.3
						0.1

*Total percentages for each line are based upon survey results expanded to reflect number of boardings at each station.

**Includes riders using both bus and trolley to reach Ashmont.

<u>Line Departed</u>	<u>Station Name</u>	<u>Number of Departures</u>	<u>Number of Transfers</u>	<u>Line Trans- ferred to</u>
ORANGE	Washington	5,240	1,700*	Red
ORANGE	State	4,080	710	Blue
ORANGE	Haymarket	690	170	Green
ORANGE	No. Station	430	10	Green
RED	Washington	2,300	620	Orange
RED	Park	3,220	1,760	Green

*About 400 of these riders continue to the Green Line from the Red Line.

Note: This information is based upon results of a survey conducted in June 1977. Hours of the survey were 7:00 to 10:00 a.m.

3.6.2 Red Line

3.6.2.1 Access

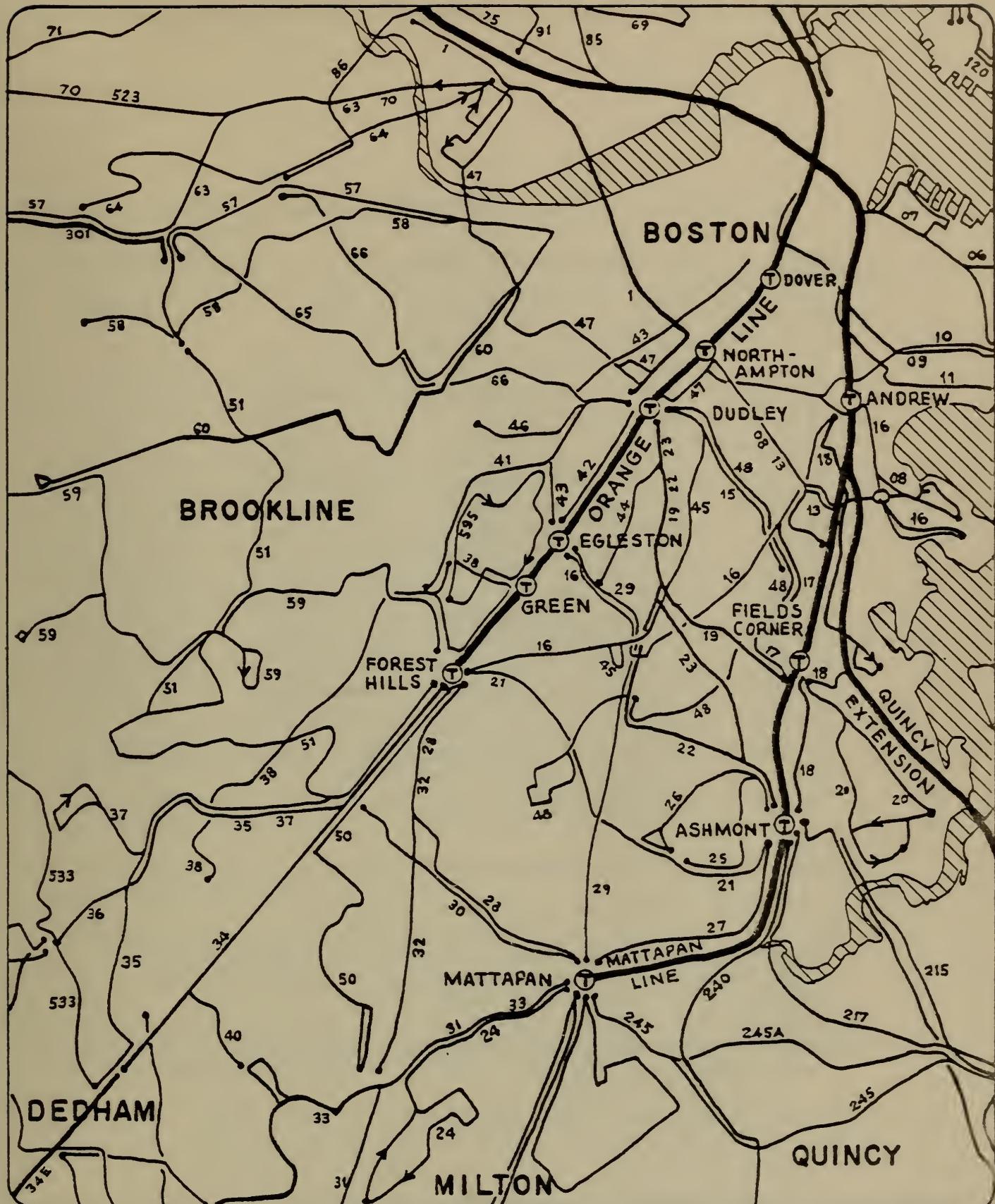
Information on the sub-mode of access to the Red Line stations is shown in Table 3-10. Percentage arrival by the different sub-modes varies considerably from station to station. Trolley is only an option at Ashmont. At Ashmont, 22% of the riders walked to the station, 36% used bus only, 22% used the Mattapan High Speed Line only, and 8% used both a bus and the Mattapan Line. Over half of the riders boarding at Fields Corner walked to the station. Forty percent of the Fields Corner boarders used bus to reach the station. At Andrew, 30% of the boarders walked to the station, 50% took a bus, and 17% drove or were driven to the station.

3.6.2.2 Departures

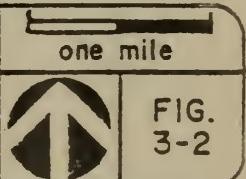
Sixty-two percent of the Red Line riders did not specify that a transfer was made. They presumably walked. Eight percent left the Red Line by bus, with another 1% transferring from the Red Line to another rapid transit line and then to a bus. Twenty-nine percent of the Red Line riders surveyed transferred to another part of the rapid transit system after leaving the Red Line. This breaks down as follows: About 620 riders (7.4% of the Red Line riders surveyed) transfer to the Orange Line, and about 1,760 riders (21.9% of the riders surveyed) transfer to the Green Line. A few of these riders (about 105) continue to the Blue Line from the Orange or Green lines.

3.7 MAJOR TRANSIT ROUTES OF ACCESS

Figure 3-2 shows the feeder bus network for the Orange Line and Red Line. Tables 3-12 and 3-13, respectively, give information on the number of persons arriving at the Orange Line and Red Line stations surveyed by individual bus routes. This data is useful to determine how many riders arrive at the station by one route relative to another route. The data is of limited value as a source of bus ridership data for two reasons. First, the data has been expanded from survey responses (procedure for expansion described in Section 2.4). Second, the bus riders using the bus routes and not boarding the rapid transit system are not represented in Tables 3-12 and 3-13. Peak load counts, characteristic counts and surveys conducted for individual bus routes are better sources of bus ridership data.



FEEDER BUS NETWORK TO THE ORANGE LINE AND RED LINE



Bus Routes Serving Orange Line

<u>Number</u>	<u>Name of Bus Route</u>	<u>Arrivals by Bus at Station</u>
1	Harvard-Dudley	64
15	Kane Sq.-Dudley	329
21	Ashmont-Forest Hills	71
22	Ashmont-Dudley via Talbot	442
23	Ashmont-Dudley via Washington	493
28	Mattapan-Arborway	138
29	Mattapan-Egleston	781
31	Wolcott Sq.-Mattapan	58
32	Cleary Sq.-Arborway via Hyde Park	495
34	Dedham Line-Arborway	974
35	Stimson-Arborway	163
36	Charles River-Arborway	547
37	Vermont-Arborway	170
38	Wren St.-Green	223
40	Georgetown-Arborway	125
41	Centre&Eliot-Dudley	205
42	Egleston-Dudley	134
44	Seaver St.-Dudley	547
45	Franklin Park-Dudley	376
50	Cleary Sq.-Arborway via Washington	151
51	Cleveland Circle-Arborway	270
59	Chestnut Hill-Forest Hills	70
66	Allston-Dudley	157
	Remaining Bus Routes*	284
	Total arriving at Orange Line by Bus	7,267
	Arrival at Orange Line by Arborway Line	70

*Arrivals at the stations for all bus routes carrying less than 50 persons to the station during the norming peak period are shown here.

Note: This information is based upon results of a survey conducted in June, 1977. Hours of the survey were 7 AM to 10 AM.

Bus Routes Serving Red Line		Arrivals by Bus at Station
<u>Number</u>	<u>Name of Bus Route</u>	
10	City Point-Dudley	82
16	Egleston-Andrew	148
17	Fields Corner-Andrew	552
18	Ashmont-Andrew	119
20	Fields Corner-Neponset	465
21	Ashmont-Forest Hills	142
22	Ashmont-Dudley via Talbot	122
23	Ashmont-Dudley via Washington	97
24	Wakefield Ave-Mattapan	63
25	Gallivan-Ashmont	125
26	Norfolk-Ashmont	163
27	Mattapan-Ashmont	163
33	Dedham Line-Mattapan	65
215	Quincy Center-Ashmont	102
217	Ashmont-Wollaston	58
240	Avon-Ashmont	451
	Remaining Bus Routes*	263
	Total arriving at Red Line by bus	3,180
	Persons arriving at Red Line by Mattapan line only	1,196
	Persons arriving at Red Line by Bus and Mattapan Line	393

*Arrivals at the stations for all bus routes carrying less than 50 persons to the station during the morning peak period are shown here

**Persons using only bus to reach the Red Line and persons using a combination of bus and Mattapan Line are included in this estimate.

Note: This information is based upon results of a survey conducted in June, 1977. Hours of the survey were 7 AM to 10 AM.

The routes carrying the largest number of Orange Line riders to their station are (in descending order): Route 34, Dedham Line - Arborway; Route 29, Mattapan - Egleston; Route 36, Charles River - Arborway; Route 44, Seaver St. - Dudley; Route 32, Cleary Sq. - Arborway; and Route 23, Ashmont - Dudley via Washington. Each of these routes carries over 400 riders to the Orange Line in the morning peak period. The routes carrying the largest number of Red Line boarders are (in descending order): the Mattapan - Ashmont High Speed Line; Route 17, Fields Corner - Andrew; Route 20, Fields Corner - Neponset; and Route 240, Avon - Ashmont. About 1,500 Red Line riders use the high speed line to reach the Red Line in the morning peak period. Each of the bus routes named carries more than 300 persons to the Red Line in the morning peak period.

3.8 COMMENTS ON SERVICE

3.8.1 Rapid Transit Service

Orange and Red Line riders participating in the survey were requested to comment on transit service. About 40% of the riders responding to the survey made comments about the rapid transit or streetcar service. Table 3-14 presents information on responses pertaining to different transit lines. (Where no line was specifically mentioned, the respondent's comment was assumed to refer to all lines used to complete the trip.) The Orange Line accounted for 57% of all comments, the Red Line, 38%, and the Green Line, 8%. Two-thirds of the Green Line comments pertained to the Arborway Branch.

Conditions stemming from a shortage of trains (long waits, overcrowding, etc.) were most frequently cited for all lines. Train condition (frequent breakdowns, dirty trains, decrepit trains, etc.), station condition (poor lighting, dirty and decrepit stations), and poor winter service followed as frequently mentioned categories of comments. Slow operating speed was primarily a concern for users of the Green Line. Only 6% of the Orange and Red Line users and none of the users of the Green Line commented that they were satisfied with the transit service.

It must be noted that the comments reflect the views of peak period transit users. Certain items, such as inadequate crosstown service and lack of security, would be of greater concern to off-peak users than they were to peak period users.

<u>Category of Comment</u>	<u>Percent of Occurrence</u>		
	<u>Orange</u>	<u>Red</u>	<u>Green</u>
Not enough trains (long waits, overcrowding)	27	42	81
Train in poor condition (frequent breakdowns, decrepit)	15	20	37
Poor station condition (poor lighting, dirty, decrepit)	15	8	4
Poor winter service	10	10	18
Poor climate control (hot in summer, cold in winter)	8	10	13
Poor service weekends & evenings	7	7	14
More express trains	10	4	1
Trains not stopping	8	7	0
Operating speed too slow	5	7	23
Lack of information (delays not explained, schedules not posted)	5	8	0
Smoking on trains	6	4	0
Good service	6	6	0
Lack of security	5	4	0
Poor employee attitudes	3	4	6
Poor track conditions (elevated unsafe, signal failures)	6	1	4
Fares (too high, no free transfer)	4	5	1
No crosstown service (too many transfers needed)	2	1	0
Operating speed too fast	1	1	0
Limited parking at station	2	1	0
Other	3	2	0

3.8.2 Bus Service

About 10% of the riders responding to the survey made comments that pertained to the MBTA bus service. These comments fall into the following categories:

Poor schedule adherence - mentioned in 42% of the comments on bus service.

Inadequate service frequency - mentioned in 34% of the comments on bus service.

Poor driver attitude - mentioned in 14% of the comments on bus service.

Smoking on the bus - mentioned in 10% of the comments on bus service.

Dirty buses - mentioned in 9% of the comments on bus service.

Slow service - mentioned in 8% of the comments on bus service.

Other items (location of bus stops, crime, etc.) - mentioned in 7% of the comments on bus service.

Bus routes 29 (Mattapan - Egleston via Blue Hill Avenue) and 44 (Seaver St. - Dudley via Humboldt) had a high number of complaints about schedule compliance.

Routes 22 (Ashmont - Dudley via Talbot), 23 (Ashmont - Dudley via Washington), and 45 (Franklin Park - Dudley via Blue Hill Avenue) were overcrowded. All five of these routes had complaints about driver attitude.

Many riders complained that bus drivers refused to stop or did not allow sufficient time for passengers to be seated before proceeding. Some riders commented that the night schedule was not carefully followed.

The respondents expressed a need for more weekend service.

4.0 HISTORICAL TRENDS

This section will discuss the 1977 survey results in the context of trends in transit ridership since the 1960's. In the first subsection, the CTPS/EOTC Transit Marketing Study findings about changes in boarding levels at the nine transit stations surveyed are summarized. In the second and third subsections, the results of the 1963 Transit Postcard Survey will be compared with the results of the 1977 survey to identify any changes in the patterns of origins and destinations by morning peak period boarders at the nine stations.

4.1 HISTORICAL TRENDS IN BOARDINGS

4.1.1 Orange Line

During the period from 1967 to 1970, according to the CTPS/EOTC Transit Marketing Study, there were declines in boardings at Forest Hills, Green, Dudley, Northampton and Dover in excess of the MBTA rapid transit system-wide decline of 2.2%. Boardings at Egleston in 1970 were slightly higher than 1967 levels.

Between 1970 and 1975, boardings declined at all six Orange Line stations in the survey. Boardings at Green and Northampton fell at a lesser rate than the system-wide decline of 11%. Boardings at Forest Hills, Egleston, Dudley and Dover fell by 20% to 26% over that period.

Over the 1975 to 1976 period, boardings at Dover increased. The declines at Northampton and Egleston were somewhat greater than the overall rapid transit system-wide decline of 2.3%. The losses in boardings at Forest Hills, Green and Dudley were the largest - between 5.5 and 12.5 over this one year period.

4.1.2 Red Line

During the period from 1967 to 1970, according to the CTPS/EOTC Transit Marketing Study, declines in boardings at Fields Corner (6.2%) exceeded overall declines in MBTA rapid transit ridership, which were 2.2%. Boardings at Ashmont and Andrew in 1970 were slightly higher than 1967 levels.

Between 1970 and 1975, boardings declined at all three Red Line stations in the survey. Boardings at Andrew fell by 24% over that period. The decline for Fields Corner and Andrew was even more severe, but that decline can be explained as

being the result of the opening of the Quincy Extension in 1971. Many transit riders who boarded at Fields Corner and Ashmont diverted to Quincy Extension stations, when they were given that option.

Over the 1975 to 1976 period, boardings at Andrew and Fields Corner fell but not so sharply as the system-wide decline of 2.3%. The decline at Ashmont was 4.3%, which is somewhat greater than the overall decline.

4.2 TRENDS IN ORIGIN PATTERNS

4.2.1 Orange Line

Information on origins for 1963 and 1977 boarders at the six Orange Line stations between 7 A.M. and 10 A.M. is presented in Table 4-1. (Figure 3-1 shows the location of communities in relation to the Orange Line.) Since 1963, boardings have declined by 32%, from 19,250 to 13,000. Losses in boarders from West Roxbury, Roslindale and the outer Southwest communities exceed this overall rate of decline. The decline rate for boarders from Roxbury and Dorchester matches the overall rate of decline. The number of boarders coming from Jamaica Plain, Hyde Park and Dedham has remained stable. The number of boarders from Mattapan has increased since 1963.

4.2.2 Red Line

Table 4-2 compares 1963 and 1977 morning peak period origins for boarders at the three Red Line stations. Since 1963, boardings have declined by over 50 percent, from 17,200 to 8,400. Losses in boarders from Quincy greatly exceeded the overall rate of decline. The share of boarders coming from Boston in 1977 has risen from the 1963 level. These facts reflect a diversion of Quincy riders to the South Shore Extension, which opened in 1971. Boardings from Milton fell at a rate that matched the overall rate of decline. There were more boardings from Jamaica Plain and South Boston in 1977 than there were in 1963. -

4.3 DESTINATIONS

4.3.1 Orange Line

Table 4-3 compares 1963 and 1977 morning peak period destinations for Orange Line boarders. The share of riders having Boston Proper as a destination has increased slightly. The number of persons using the Orange Line to reach the Back Bay has increased, which reflects (1) the deterioration of the alternative to the Orange Line, Arborway Branch service and

<u>Origins</u>	<u>1963 Boarders</u>	<u>Percent of all Boarders</u>	<u>1977 Boarders</u>	<u>Percent of all Boarders</u>
Boston	16,863	87.6	11,737	90.2
Roxbury	4,439	23.1	3,168	24.3
Dorchester	1,701	8.8	1,157	8.9
Jamaica Plain	2,761	14.3	2,722	20.9
W. Rox. & Roslindale	4,541	23.6	1,520	11.7
Hyde Park	1,322	6.9	1,380	10.6
Mattapan	520	2.7	842	6.5
South Boston	36	0.2	0	0.0
South End	1,020	5.3	408	3.1
Other neighborhoods	523	2.7	540	4.2
Brookline	213	1.1	149	1.1
Dedham	533	2.8	513	4.0
Milton	38	0.2	82	0.6
Newton	64	0.3	104	0.8
Quincy	79	0.4	69	0.5
Outer Southwest towns*	1,007	5.2	183	1.4
Outer South Shore towns**	154	0.8	14	0.1
Brockton & vicinity***	60	0.3	36	0.3
Remaining origins	239	1.3	125	1.0
TOTAL ORIGINS	19,250	100.0	13,012	100.0

*Includes Needham, Dover, Westwood, Norwood, Canton, Stoughton, Sharon and other towns in Southwest section of EMRPP district.

**Includes Randolph, Braintree, Weymouth, Hingham, Holbrook, Rockland and other towns in South Shore section of EMRPP district.

***Includes Brockton and nearby towns--Abington, Hanson, Whitman, Avon, Easton, Halifax, East Bridgewater, West Bridgewater and Bridgewater.

<u>Origins</u>	<u>1963 Boarders</u>	<u>Percent of all Boarders</u>	<u>1977 Boarders</u>	<u>Percent of all Boarders</u>
Boston	10,394	60.4	6,247	74.1
Roxbury	353	2.1	44	0.5
Dorchester	7,727	44.9	4,227	50.2
Jamaica Plain	21	0.1	244	2.9
W. Rox. & Roslindale	35	0.2	16	0.2
Hyde Park	489	2.8	24	0.3
Mattapan	1,072	6.2	837	9.9
South Boston	578	3.4	771	9.1
South End	0	0.0	8	0.1
Other neighborhoods	119	0.7	76	0.9
Brookline	1	0.0	0	0.0
Dedham	3	0.0	16	0.2
Milton	1,984	11.6	1,008	12.0
Newton	14	0.1	0	0.0
Quincy	2,456	14.3	76	0.9
Outer Southwest towns*	276	1.6	136	1.6
Outer South Shore towns**	1,658	9.6	618	7.3
Brockton & vicinity***	356	2.1	299	3.5
Remaining origins	52	0.3	31	0.4
TOTAL ORIGINS	17,194	100.0	8,431	100.0

*Includes Needham, Dover, Westwood, Norwood, Canton, Stoughton, Sharon and other towns in Southwest section of EMRPP district.

**Includes Randolph, Braintree, Weymouth, Hingham, Holbrook, Rockland and other towns in South Shore section of EMRPP district.

***Includes Brockton and nearby towns--Abington, Hanson, Whitman, Avon, Easton, Halifax, East Bridgewater, West Bridgewater and Bridgewater.

<u>Destinations</u>	<u>1963 Boarders</u>	<u>Percent of all Boarders</u>	<u>1977 Boarders</u>	<u>Percent of all Boarders</u>
Boston	17,465	90.7	12,009	92.3
Boston Proper	15,230	79.1	10,469	80.5
(Downtown)	(14,041)	(72.9)	(9,415)	(72.4)
(South End)	(578)	(3.0)	(363)	(2.8)
(Back Bay)	(611)	(3.2)	(691)	(5.3)
Fenway	436	2.3	241	1.8
South Boston	503	2.6	242	1.9
Roxbury	322	1.7	216	1.7
Dorchester	155	0.8	306	2.4
Jamaica Plain	62	0.3	198	1.5
Allston/Brighton	128	0.7	56	0.4
Charlestown	414	2.1	133	1.0
East Boston	84	0.4	68	0.5
Other neighborhoods	131	0.7	80	0.6
Cambridge	903	4.7	581	4.5
Somerville	111	0.6	11	0.1
Everett & Chelsea	167	0.9	51	0.4
Quincy	0	0.0	70	0.5
Newton	56	0.3	79	0.6
Brookline	68	0.3	63	0.5
Northern Corridor towns*	159	0.8	80	0.6
Remaining towns	321	1.7	68	0.5
	<hr/>	<hr/>	<hr/>	<hr/>
	19,250	100.0	13,012	100.0

*Includes Malden, Medford, Winchester, Melrose, Woburn, Stoneham and Wakefield.

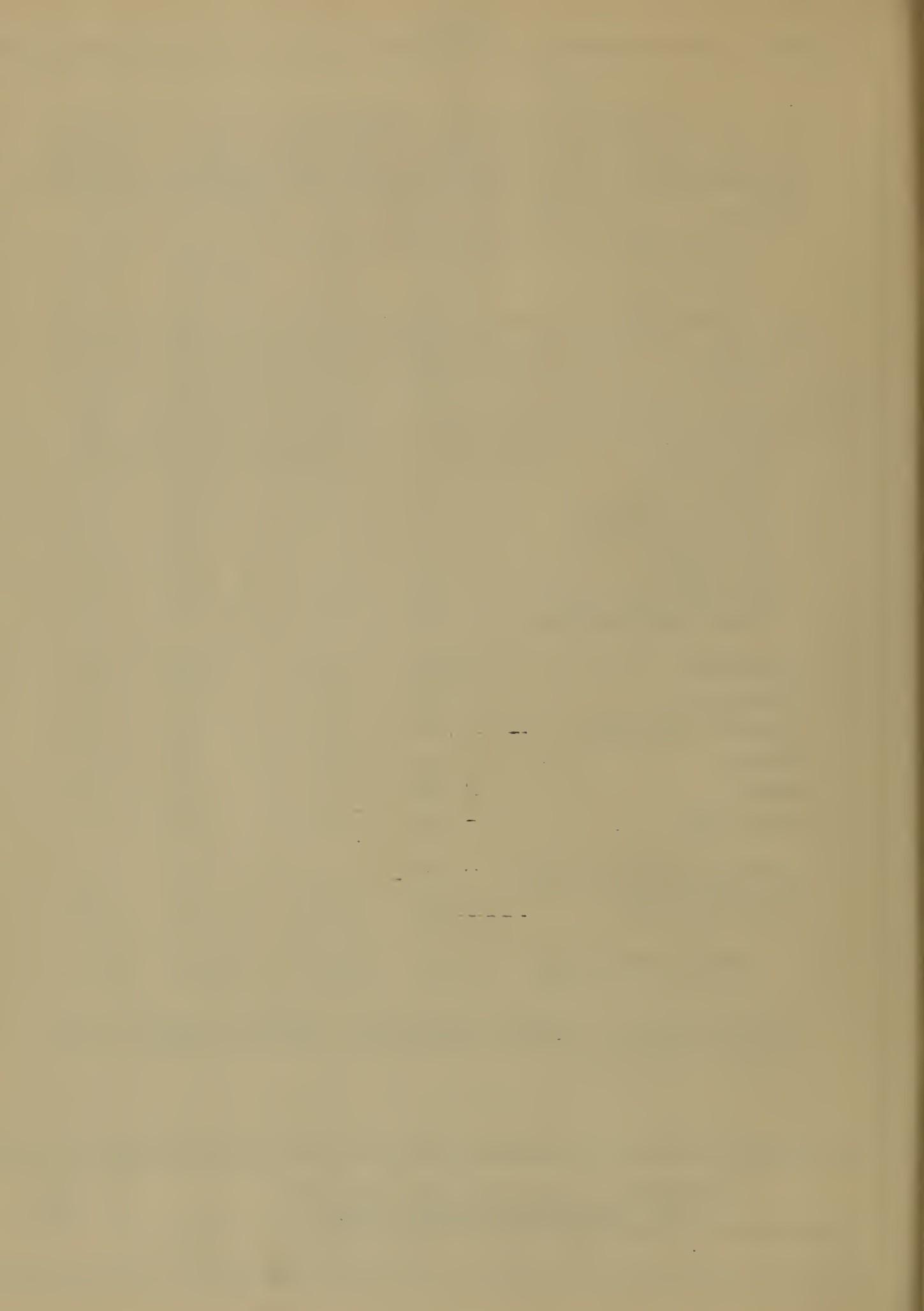
(2) the growth in employment and retail activity in the Back Bay. The number of persons boarding at the Orange Line stations with destinations in towns in the northern corridor, has not increased in spite of the improved service stemming from the relocation of the northern terminus of the Orange Line to Oak Grove. The number of riders going to Jamaica Plain and Dorchester increased between 1963 and 1977.

4.3.2 Red Line

Table 4-4 presents information on destinations for boarders at the three Red Line stations for 1963 and 1977. The percentage of boarders with Downtown Boston as a destination fell by almost ten points between 1963 and 1977. The percentage of boarders going to the Back Bay or to Cambridge increased but the absolute number of persons going to these destinations fell over this time period. The number of persons going to Dorchester increased over this period.

<u>Destinations</u>	<u>1963 Boarders</u>	<u>Percent of all Boarders</u>	<u>1977 Boarders</u>	<u>Percent of all Boarders</u>
Boston	15,655	91.1	7,394	87.7
Boston Proper	13,286	77.3	6,045	71.7
(Downtown)	(11,801)	(68.7)	(4,988)	(59.1)
(South End)	(194)	(1.1)	(133)	(1.6)
(Back Bay)	(1,291)	(7.5)	(924)	(11.0)
Fenway	858	5.0	378	4.5
South Boston	647	3.8	348	4.1
Roxbury	109	0.6	0	0.0
Dorchester	272	1.6	393	4.7
Jamaica Plain	19	0.1	14	0.2
Allston/Brighton	245	1.4	99	1.2
Charlestown	137	0.8	47	0.5
East Boston	33	0.2	47	0.5
Other neighborhoods	49	0.3	23	0.3
Cambridge	1,075	6.2	714	8.5
Somerville	39	0.2	11	0.1
Everett & Chelsea	56	0.3	25	0.3
Quincy	28	0.2	93	1.1
Newton	28	0.2	51	0.6
Brookline	74	0.4	54	0.7
Northern Corridor towns*	74	0.4	11	0.1
Remaining towns	165	1.0	78	0.9
TOTAL DESTINATIONS	17,194	100.0	8,431	100.0

*Includes Malden, Medford, Winchester, Melrose, Woburn, Stoneham and Wakefield.



ATTACHMENT A
Copy of Survey Form

No 24576



REPLACEMENT/TRANSIT IMPROVEMENT STUDY
SURVEY OF MBTA ORANGE AND RED LINE RIDERS

Dear Patron:

This survey is being conducted for the MBTA in order to plan for improved transit service in the South End/Roxbury/Dorchester/Mattapan area. Your cooperation in completing and returning this questionnaire will provide important information for that planning. PLEASE DROP THE COMPLETED QUESTIONNAIRE IN THE COLLECTION BOX IN THIS STATION, IN THE COLLECTION BOX AT THE STATION WHERE YOU GET OFF THIS TRAIN, OR IN ANY MAILBOX. THE FORM IS PREPAID AND NEEDS NO POSTAGE. This information will be kept in strictest confidence, and your cooperation is greatly appreciated. Thank you.

A. I AM COMING FROM (Check one):

7-1 My Home -2 School -3 Place of Work -4 Shopping -5 Medical Location -6 Other

B. THE PLACE I AM COMING FROM IS LOCATED AT:

8 12 32
Number Street or Building Name City or Town

C. I GOT TO THIS TRANSIT STATION (Check one):

46-1 By walking -4 As a passenger in a car that was parked -7 By taxi
-2 By bus -5 As a passenger in a car that was NOT parked -8 By other means
-3 By driving a car and parking -6 By trolley or train

D. PLEASE LIST, IN ORDER OF BOARDING, THE NAME OR ROUTE NUMBER OF EACH BUS, TROLLEY, OR TRAIN YOU USED TO GET TO THE TRANSIT STATION:

1st vehicle _____ 47 2nd vehicle _____ 50

E. THE TYPE OF FARE I PAID ON THIS TRAIN WAS (Check one):

53-1 Student transfer -3 Handicapped half-fare -5 Child half-fare -7 Regular cash fare
-2 Elderly half-fare -4 Student half-fare -6 Pre-paid pass -8 Other _____

F. AT WHAT STATION WILL YOU LEAVE THIS TRAIN?

54

G. IF, AFTER LEAVING THIS TRAIN, YOU WILL USE A BUS, TROLLEY, OR ANOTHER TRAIN TO GET TO THE PLACE YOU ARE GOING, LIST, IN ORDER OF BOARDING, THE NAMES OR ROUTE NUMBERS:

1st vehicle _____ 56 2nd vehicle _____ 59

H. I AM GOING TO (Check one):

7-1 My Home -2 School -3 Place of Work -4 Shopping -5 Medical Location -6 Other

I. THE PLACE I AM GOING TO IS LOCATED AT:

8 12 32
Number Street or Building Name City or Town

J. WHAT IS YOUR OCCUPATION (Check one)?

46-01 Shop/factory worker -04 Housewife -07 Student -10 Domestic or service worker
-02 Craftsman or foreman -05 Unemployed -08 Retired -11 Other _____
-03 Clerical -06 Professional -09 Sales

K. WHAT IS YOUR AGE?

48-1 17 or under -2 18-24 -3 25-44 -4 45-59 -5 60-64 -6 65 or over

L. HOW MANY AUTOMOBILES ARE OWNED OR OPERATED BY YOUR HOUSEHOLD?

49-1 None -2 One -3 Two -4 Three or more

M. DO YOU HAVE ANY COMMENTS OR SUGGESTIONS REGARDING YOUR TRANSIT SERVICE?

THANK YOU VERY MUCH.

ATTACHMENT B - Code Descriptions

Columns	Length	Description	Allowable Codes	Code Description	Comments
1-2	2	Boarding station	11 12 13 14 15 16 32 34 37	Forest Hills Green Egleston Dudley Northampton Dover Ashmont Fields Corner Andrew	Obtained from form serial number
3	1	Place of origin	0 1 2 3 4 5 6	No response Home School Work Shopping Medical location Other	Question A of survey form
4-7	4	House number of origin			Question B
8-27	20	Street number or building name			Question B
28-41	14	City or town of origin			Question B
42	1	Mode of access	0 1 2 3 4 5 6 7 8	No response Walk Bus Park & ride - driver Park & ride - p'snger Kiss & ride Trolley or train Taxi Other	Question C

Columns	Length	Description	Allowable Codes	Code Description	Comments
43-45	3	1st vehicle used to reach boarding station	000 010 030 031 050 070 100-900 901-999 995 999	No response Orange Line Red Line Mattapan High Speed Line Blue Line Green Line Any bus route no. in this range Bus routes no. 1-99 Unspecified bus rte. Unspecified train	Question D If rapid transit was used and a specific station of boarding was named, response was coded following list in Attachment C.
46-48	3	2nd vehicle used to reach boarding station		see col. 43-45	Question D
49	1	Type of fare paid	0 1 2 3 4 5 6 7 8	No response Student transfer Elderly half-fare Handicapped half-fare Student half-fare Child half-fare Pre-paid pass Regular cash fare Other	Question E
50-51	2	Debarkation station number		see Att. C	Question F

Columns	Length	Description	Allowable Codes	Code Description	Comments
52-54	3	1st vehicle used after alightment	000 010 030 031 050 070 100-900 901-999 995 999	No response Orange Line Red Line Mattapan High Speed Line Blue Line Green Line Any bus route no. in this range Bus routes no. 1-99 Unspecified bus rte. Unspecified train	Question G If rapid transit was used and a specific station of boarding was named, response was coded fol- lowing list in Attachment C.
55-57	3	2nd vehicle used after alightment	see col. 52-54		Question G
58-63	6	Origin census tract	blank 1-999999	Not coded Tract numbers	Number is left justified
64-68	5	Origin census block	blank 1-99999	Not coded Block numbers	Number is left justified
69-71	3	CTPS Origin zone number	blank 1-592	Not coded Zone numbers	
72-74	3	Replacement / Transit Impr. Study zone number	blank 1-170	Not coded Zone numbers	
75-76	2	Replacement / Transit Impr. Study district number	blank 1-38	Not coded District numbers	
77-80	4	Blank columns			
81	1	Place of destination	0 1 2 3 4 5 6	No response Home School Work Shopping Medical location Other	Question H

Columns	Length	Description	Allowable Codes	Code Description	Comments
82-85	4	House number of destination			Question I
86-105	20	Street number or building name			Question I
106-119	14	City or town of destination			Question I
120-121	2	Occupation	0 1 2 3 4 5 6 7 8 9 10 11 Other	No response Shop/factory worker Craftsman or foreman Clerical Housewife Unemployed Professional Student Retired Sales Domestic or service worker Other	Question J
122	1	Age group	0 1 2 3 4 5 6	No response 17 or under 18 - 24 25 - 44 45 - 59 60 - 64 65 or over	Question K
123	1	Number of automobiles in household	0 1 2 3 4	No response None One Two Three or more	Question L
124-129	6	Destination census tract	blank 1-999999	Not coded Tract numbers	Number is left justified

Columns	Length	Description	Allowable Codes	Code Description	Comments
130-134	5	Destination census block	blank 1-99999	Not coded Block numbers	Number is left justified
135-137	3	CTPS Destination zone number	blank 1-592	Not coded Zone numbers	
138-140	3	Replacement / Transit Impr. Study zone number	blank 1-170	Not coded Zone numbers	
141-142	2	Replacement / Transit Impr. Study district number	blank 1-38	Not Coded District numbers	
143-147	5	Serial number of form		1-25,000	
148	1	Blank column			

Data is cataloged on a tape at CTPS under the following data set name:

DSN = CTPS.SOPYLA.SURVEY.RTIS.JUNE77

ATTACHMENT C
Transit Station Codes

ORANGE LINE

STATION UNSPECIFIED	10
Forest Hills	11
Green	12
Egleston	13
Dudley	14
Northampton	15
Dover	16
Essex	17
Community College	18
Thompson	19
Sullivan	20
Wellington	21
Malden	22
Oak Grove	23

RED LINE

STATION UNSPECIFIED	30
Mattapan	31
Ashmont	32
Shawmut	33
Fields Corner	34
Savin Hill	35
Columbia	36
Andrew	37
Broadway	38
South Station	39
Charles	40
Kendall Square	41
Central Square	42
Harvard Square	43
Quincy	44
Wollaston	45
North Quincy	46

BLUE LINE

STATION UNSPECIFIED	50
Wonderland	51
Revere	52
Beachmont	53
Suffolk	54
Orient	55
Wood Island	56
Airport	57
Maverick	58
Aquarium	59
Bowdoin	60

GREEN LINE

STATION UNSPECIFIED	70
Arborway	71
Symphony	72
Prudential	73
Copley	74
Arlington	75
Boylston	76
Science Park	77
Lechmere	78
Auditorium	79
Kenmore	80
All others	81

DOWNTOWN STATIONS

Washington	91
State	92
Park Street	93
Government Center	94
Haymarket	95
North Station	96

BOSTON
PUBLIC
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